REMARKS/ARGUMENTS

Specification

The amendment for paragraph [0029] follows exactly that of the previous, Feb. 28, 2006 amendment. Due to a clerical oversight, the changes to [0029] were left off. No new matter is introduced.

Claim Rejections - 35 USC § 103

Claims 1, 2, 7, 8 & 11-21 were rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (AAPA) in view of Wildhagen et al (US 2003/0059065), herein Wildhagen.

Applicants traverse the Examiner's assertion "Wildhagen teaches adjustable gain control circuitry (Figure 1, Items 1,3,5, 11, 13, 14, 16, 19,20; Wildhagen) for receiving a radio signal and outputting an amplified analog signal using a gain determined by a magnitude of the signal at an output of the analog to digital circuitry (Page 2 [0027]-[0028]; Page 3,[0029]; Wildhagen)". Wildhagen's paragraphs do not say that the gain of the VGA is determined by the magnitude of the output of the ADC. There are no words saying that. Instead, those paragraphs always refer to the VCA OUTPUT. Furthermore, in paragraph [0007] lines 7, 8, 12, and 13, Wildhagen states the gain is controlled by "comparing the magnitude of the VCA output signal with a predefined reference magnitude, and a forward controlling element which transforms the error signal into a gain control signal for the VCA .... the automatic gain control unit comprises means for varying the control rate of the closed-loop control circuit according to the magnitude of the VCA output signal, whereby the control rate is increased with increasing magnitude of the VCA signal".

Wildhagen happens to use an ADC in his closed-loop circuit to feedback a signal, but it does not mean that Wildhagen predicates his VCA gain control determination on the magnitude of the ADC output. Wildhagen merely uses the ADC/DAC as a tool to ascertain the value of the VCA output, or equivalently, what the value input to the ADC is. Therefore, Wildhagen predicates and determines a gain of his VCA by the magnitude of the **INPUT** to the ADC (or equivalently, the output of the VCA) and compares it to a predefined reference voltage. In contrast, Claim 1 recites "a gain determined by a magnitude of the signal at an **OUTPUT** of the analog-to-digital", **not the INPUT.** Therefore, Claim 1 is not anticipated nor rendered obvious by either the AAPA or Wildhagen, in combination or separately. Claim 1 should be allowable over these prior art.

Claim 7 is an analogous method claim to the apparatus Claim 1, and Claim 13 is a broader recitation of Claim 1; Claims 7 and 13 should be similarly allowable.

Applicant traverses the Examiner's statements "it is obvious to one of ordinary skill in the art that in order to represent a radio signal a plurality of digital bit values are required to indicate the signal" and "Wildhagen teaches that the gain applied by the adjustable gain control circuitry is determined responsive to one or more of the bit values (Page 3, [0029]; Wildhagen)". Sometimes receivers are analog, such as the analog superheterodyne receivers or optical fiber receivers; there are no digital bits; the Examiner's statements cannot be considered obvious. **Further, Applicants note the important distinction between the idea of using the ADC merely as a tool to ascertain a value *vs* the idea of using which circuit's output signal to actually determine the gain adjustment. Therefore, in this spirit, as recited in Claim 1 and 2, Wildhagen does not teach that the gain determination is responsive to one or more bits.** Claims 2 and 8 should be allowable over Wildhagen and the AAPA.

Claims 11, 12, and 20, being dependent on Claims 1, 8, and 13, respectively, should be allowable for the at least same above reasons.

Claims 14 – 18, being dependent on Claim 13, should be allowable for the at least same above reasons.

Applicants traverse the Examiner's statement regarding Claim 19 and 21 and multiplicity: "the additional for a separate path, having the exact same result is hereby rejected". Example cases for multiple objects come from [0005] line 15, and [0016 – 0018], where the sensitivity and interference test provide very different results; so, more than one AGC or ADC may be useful. Therefore, Claims 19 and 21 are not anticipated nor rendered obvious by either the AAPA or Wildhagen, in combination or separately. Claims 19 and 21 should be allowable over these prior art.

Claims 3-6, 9 & 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Wildhagen as applied to claims 1, 2, 7 & 8 above, and further in view of Zamat (US 6,314,278).

Applicants traverse the Examiner's statement: "Zamat teaches a digital gain reduction by a first amount responsive to a MSB value indicating that the analog to digital converter has exceeded a first saturation threshold (Column 6, Lines 14-16; Zamat)". Zamat does not state what the Examiner asserted. Rather, those Lines 14-16 state "MSB all ones" and Zamat Col 4, L28 states "full scale"; therefore, Zamat does not anticipate the recitations of Claim 3 "**a** most significant of said bit values" and "**a first** saturation threshold". Therefore, Claim 3 should be allowable over Zamat and also the other two references which the Examiner already indicated do not anticipate Claim 3. Further, as Claim 9 is an analogous method claim to the apparatus Claim 3", Claim 9 should be similarly allowed.

Claim 4, being dependent on Claim 3, should be allowable for the at least same forgoing reasons.

Regarding Claim 5, Applicants traverse the Examiner's interpretation of Zamat that "additionally Zamat teaches wherein said gain is reduced by a second amount responsive to a set of MSB of said bit values indicating that the analog to digital converter has exceeded a second saturation threshold (Column 5, Lines 24-45; Zamat)"; instead, Zamat looks at <u>multiple</u> samples of signals (see Col 5, L 24, L 31). In contrast, Claim 5 (dependent on Claim 1) recites "<u>a</u> signal", "<u>a</u> digital representation" and "<u>a</u> magnitude". Therefore, Zamat does not anticipate Claim 5, nor the analogous Claim 10. Claims 5 and 10 should be allowable over Zamat, along with AAPA and Wildhagen which do not teach a second threshold.

Regarding Claim 6, the text (Column 5, 16-23; Zamat) indicated by the Examiner, refers to <u>thirty-two</u> samples in a cycle (see Col 5, L 25). Whereas, Claim 6 (dependent on Claim 1) recites "<u>a</u> sample". Therefore, AAPA, Wildhagen and Zamat, whether in combination or separately, do not anticipate nor render obvious Claim 6; Claim 6 should be allowable over these references.

Respectful request is made for a withdrawing the rejections, entering the amendment to the specification, and issuing a Notice of Allowance.

Respectfully submitted,

/Ronald O. Neerings/
Ronald O. Neerings
Reg. No. 34,227
Texas Instruments Incorporated
PO Box 655474, M/S 3999
Dallas, Texas 75265
972.917.5299